EMULEX®

Offline and Online Adapter Management Utilities Version 6.3 User Manual

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1. Introduction

This document explains how to use the adapter management utility kits for Linux and Windows pre-boot environments (offline management), as well as, the FreeBSD operating system.

You can also use adapter management utility kits for production environments referred to as the online adapter management utility.

Offline Adapter Management Utility

The Offline Adapter Management Utility kits allow you to configure Emulex® adapters before you install or boot a server operating system. You can also use a Standalone Offline Adapter Management utility, which allows you to update firmware on Emulex adapters without needing to install any tools. See "Running the Standalone Adapter Management Utility" on page 39 for more information.

The offline utility includes:

- winlpcfg/Elxflash for Windows
- linlpcfg/Elxflash for Linux
- linlpcfg/Elxflash for FreeBSD

The winlpcfg and the linlpcfg are management utilities for adapter configuration and diagnostics for Windows and Linux respectively. linlpcfg is also used for the FreeBSD operating system. The lpcfg utility can also download firmware, but you must manually select which adapters to update.

Elxflash is a firmware download utility. When the /auto switch is used, Elxflash automatically chooses the "best" image to download. When the fwmatrix.txt file is used, you choose which images to apply to adapters.

Additionally, Linux has an offline utility for NIC adapters only. This utility uses operating system-provided features and utilities to discover UCNA adapters and download firmware. This utility relies on the inbox driver for supported distributions and only supports UCNAs. See "Offline Adapter Management Utility - NIC Only" on page 12 for more information.

Note: You must install the Offline Adapter Management utilities except the standalone Offline Adapter Management utility which is extracted.

See "Offline Adapter Management Utility Command Line Interface" on page 37 for further information on the offline utility.

Online Adapter Management Utility

The Online Adapter Management Utility uses a command line interface allowing you to build scripts for automated and unattended firmware and boot code download solutions for Emulex LightPulse® Fibre Channel Host Bus Adapters (HBAs) and OneConnect™ Universal Converged Network Adapters (UCNAs) that are in

production systems. You can also download firmware and boot code on local and remote machines simultaneously. The Standalone Adapter Management utility, which allows you to update firmware on Emulex adapters without needing to install any tools, is also available. See "Running the Standalone Adapter Management Utility" on page 39 for more information.

Note: For simplicity, this document refers to HBAs and UCNAs as adapters.

The Online Adapter Management Utility uses auto-discovery (/auto) so you do not need to maintain the fwmatrix.txt configuration file. When auto-discovery is invoked, the utility automatically discovers local adapters and performs selected operations such as: /ff (force firmware), /fb (force boot), /update, /downgrade, and /rewrite.

When using auto-discovery you must populate the firmware and boot subdirectories with image files for specific adapter models. Auto-discovery requires the use of Emulex defined firmware and boot code file names in their respective directories.

If you do not want to use auto-discovery, the Online Adapter Management Utility can update the firmware or boot code of an adapter using the fwmatrix.txt configuration file. When using the fwmatrix.txt file, you must update each supported adapter's type, firmware, and boot code entries and place the corresponding firmware and boot code images into their respective directories. The fwmatrix.txt file enables all operations that are used with auto-discovery.

Note: Unlike the offline utilities, you do not install the online utilities; you extract them.

Key Capabilities

Key capabilities include the following switches that are available on all versions of the utility unless otherwise indicated:

- /auto – Auto-discovers adapters and does not use the fwmatrix.txt configuration file.
- /downgrade – Downgrades firmware or boot code if the downgrade version is less than the version that is currently installed on an adapter.
- /fb – Forces a boot code download on an adapter.

   Note: /fb is not available in the ElxflashOfffline_NIC_Only kit.

- /fc – Processes FC HBAs only.

   Note: /fc is not available in the ElxflashOfffline_NIC_Only kit.

- /ff – Forces a firmware download on an adapter.
- /fo – Uses the flash executable on supported UCNAs.

   Note: /fo is available for Elxflash Offline and Elxflash Standalone only.

- /fmd=<directory> – Changes the base directory where fwmatrix.txt is located.
- /help– Opens the help system.

- /id=<directory> – Changes the base directory where the firmware and boot code directories are located.
- /iv=<image_version> – Displays an image file's version.
- /log=<logfile> – Logs everything printed to stdout to a log file.
- /p – Previews a download of firmware or boot code and allows you to preview what actions Elxflash will take given additional switches.
- /q – Prints a query
- /ramdrive=<path> – Allows the temp path to be changed.

    Note: /ramdrive is available for Elxflash Offline and Elxflash Standalone for Windows only.

- /remote – Discovers remote HBAs and allows remote download support.

    Note: /remote is available for Elxflash Online only.

- /rewrite – Explicitly re-flashes the firmware or boot code on an adapter if the rewrite version is equal to or higher than the version currently installed on the adapter.
- /s – Mutes all output to stdout.
- /ucna – Processes UCNAs only.
- /update – Updates firmware or boot code if the update version is greater than the version currently installed on an adapter.
- /verbose – Displays detailed messages.
- /xml – Displays utility output in xml format.

Supported Platforms

The online and offline applications can be installed on Windows and Linux, or as a standalone utility for Window and Linux. FreeBSD supports Elxflash Offline.

For supported adapters, and supported versions of operating systems and platforms, see the Emulex website.

Abbreviations

BIOS	basic input-output system
CEE	Converged Enhanced Ethernet
CNA	Converged Network Adapter
defwwn	default world-wide name
DUD	driver update disk
EFI	Extensible Firmware Interface
FC	Fibre Channel
FCoE	Fibre Channel over Ethernet

F/W	firmware
HBA	host bus adapter
hex	hexidecimal
IEEE	Institution of Electrical and Electronics Engineers
iSCSI	internet Small Computer System Interface
linlpcfg	LightPulse configuration for Linux
LPFC	LightPulse Fibre Channel
LUN	logical unit number
MAC	media access control
MILI	Management Interface Library
N/A	not applicable
NIC	network interface card (or controller)
NVPARAMS	non-volatile parameters
NVWWN	non-volatile world-wide name
OCM	OneCommand Manager
OEM	original equipment manufacturer
OS	operating system
PCI	peripheral controller interface
PCI_ID	PCI device identification number
PLOGI	Port login
POST	power-on self-test
ROM	read-only memory
RPM	package manager using .rpm files for Linux distributions
SAN	storage area network
stdout	standard output
UCNA	Universal Converged Network Adapter
VPD	vital product data
VWWNN	volatile WWNN
VWWPN	volatile WWPN
winlpcfg	LightPulse configuration for Windows
WWN	world wide name
WWNN	world wide node name
WWPN	world wide port name

2. Installation

Platform Pre-requisites

Linux

The Linux platform requires additional software, such as libraries, to run the different versions of the Offline/Online utility. These pre-requisites are listed below.

Note: The Linux driver must be installed on the system for the Elxflash applications to work properly.

Offline Adapter Management Utility

- libnl library

Offline Adapter Standalone Management Utility

- libnl library

Online Adapter Management Utility

- OneCommand Core or Enterprise Kit

Offline Adapter Management Utility - NIC Only

RHEL 5.6, 5.7, 5.8 and later

- Inbox NIC driver
- ethtool
- libsysfs

RHEL 6.0, 6.1, 6.2 and later

- Inbox NIC driver
- ethtool
- libsysfs
- pcutils-libs

SLES 10 SP4, SLES 11 SP1, and SLES 11 SP2

- Inbox NIC driver
- ethtool
- sysfsutils
- pcituils

Note: For SLES 10 SP4, you can use the DUD NIC driver 4.0.359.0s or later as an option.

CentOS 6.0, 6.1, 6.2 and later

- Inbox NIC driver
- ethtool
- libsysfs
- pcutils-libs

Windows

There are no pre-requisites for Windows.

FreeBSD

The FreeBSD platform requires additional software, such as libraries, to run the different versions of the Offline/Online utility. These pre-requisites are listed below and provided by the operating system.

- libstdc++
- libm
- libc
- libgcc

Note: BASH is required to run the install and uninstall scripts. If it is not installed, you must install the package which is part of the FreeBSD distribution.

Installing the Offline Adapter Management Utility for Linux

The Offline Adapter Management utility for Linux uses an install script to install the utility. The install script determines the correct architecture and distribution, and updates the existing ElxflashOffline and Elxlinlpcfg RPMs. If there are no existing ElxflashOffline or Elxlinlpcfg RPMs, the install script installs the packaged ElxflashOffline and Elxlinlpcfg RPMs.

To install the Offline Adapter Management utility for Linux:

1. Untar the installation tar ball.
2. Run the install script located on the root of the installation kit.

Example:

```
$ tar zxvf elxflashOffline-<platforms>-<version>-<rel>.tgz
$ cd elxflashOffline-<platforms>-<version>-<rel>
$ ./install.sh
```

Updating

To update an existing Offline Adapter Management utility for a Linux installation, run the install.sh script to update the ElxflashOffline and Elxlinlpcfg RPMs.

Uninstalling

The Offline Adapter Management utility for Linux uses an uninstall script to uninstall the utility. The uninstall script executes specific actions depending on the switches that are used.

- ./uninstall.sh   – Uninstalls ElxflashOffline and Elxlinlpcfg.
- ./uninstall.sh -h – Displays a summary of all available switches.

To uninstall the Offline Adapter Management Utility for Linux, run the uninstall script located on the root of the installation kit.

Example:

```
$ cd elxflashOffline-<platforms>-<version>-<rel>
$ ./uninstall.sh
```

Extracting the Online Adapter Management Utility for Linux

The Online Adapter Management utility for Linux uses a .tgz file that you extract into an appropriate directory.

To extract the Online Adapter Management utility for Linux:

1. Untar the elxflashOnline tar ball that matches the target architecture and operating system.
2. Copy the elxflashOnline-<version>-<rel> directory to the directory you choose.

Example:

```
$ tar zxvf elxflashOnline-<platforms>-<version>-<rel>.tgz
$ cd elxflashOnline-<platforms>-<version>-<rel>/<arch>/<os>
```

Note: To run the Online Adapter Management Utility, you must install the OneCommand Manager application and the adapter drivers. These components are not included in the Online Adapter Management Utility - Linux Kit.

Updating

To update the Online Adapter Management utility for Linux, untar the new version of the elxflashOnline tar ball that matches the target architecture and operating system, and delete the old version.

Uninstalling

To remove the Online Adapter Management utility for Linux, remove the elxflashOnline-<platforms>-<version>-<rel> directory that was created during extraction.

Example:

```
$ rm -rf elxflashOnline-<platforms>-<version>-<rel>
```

Installing the Offline Adapter Management Utility for Linux (NIC Only)

The install script determines the correct architecture and distribution, and upgrades the existing ElxflashOffline and Elxlinlpcfg RPMs. If there are no existing ElxflashOffline or Elxlinlpcfg RPMs, the install script installs the packaged ElxflashOffline and Elxlinlpcfg RPMs.

To install the Offline Adapter Management utility for Linux (NIC only):

1. Untar the installation tar ball.
2. Run the install script located on the root of the installation kit.

Example:

```
$ tar zxvf elxflashOffline_NIC Only-<platforms>-<version>-<rel>.tgz
$ cd elxflashOffline-<platforms>-<version>-<rel>
$ ./install.sh
```

Updating

To update the Offline Adapter Management utility for Linux (NIC only), run the install.sh script to upgrade the ElxflashOffline RPM.

Uninstalling

To uninstall the Offline Adapter Management utility for Linux (NIC only), run the uninstall script located on the root of the installation kit.

The uninstall script executes specific actions depending on what switches are used. See "Uninstalling" on page 14 for a list of the switches used with the Offline Adapter Management utility for Linux.

Example:

```
$ cd elxflashOffline-<platforms>-<version>-<rel>
$ ./uninstall.sh
```

Installing the Offline Adapter Management Utility for Windows PE

To install the Offline Adapter Management utility for Windows PE:

1. Unzip the Offline-WinPE-<version>-<rel>.zip.
2. Change the directory to the correct architecture subdirectory.
3. Run the setupElxAll-<arch>.exe.

   The following components are installed:

   - Storport UCNA driver
   - Storport Fibre Channel (FC) driver

- OneConnect iSCSI and NIC drivers
- WinLpCfg/Elxflash Offline

Note: The setupElxAll-<arch>.exe. is compatible only with WinPE. It does not function with any version of Windows server.

Updating

With an existing Offline Adapter Management utility for a Windows PE installation, run the Offline-WinPE-<arch>-<version>-<rel>.exe.

The installer uninstalls the existing version and then installs the updated version.

Uninstalling

To uninstall the Offline Adapter Management utility for Windows PE, run the following commands:

```
X:\>cd "X:\ProgramData\Tarma Installer\{AE1F1CA1-B626-4447-9208-14607187EC3D}"
X:\>setup.exe /remove
```

Extracting the Online Adapter Management Utility for Windows

To extract the Online Adapter Management utility for Windows:

1. Unzip the ElxflashOnline-windows-<version>-<rel>.zip file.
2. Copy the win32 or x64 directory to the location you choose.

Note: To run the Online Adapter Management Utility, you must install the OneCommand Manager application and the adapter drivers. These components are not included in the Online Adapter Management Utility for Windows.

Updating

To update the Online Adapter Management utility for Windows, unzip the new version and delete the old version.

Uninstalling

To uninstall the Online Adapter Management utility for Windows, remove the win32 or x64 directory that was created during installation.

Extracting the Offline Adapter Standalone Management Utility (Linux and Windows PE)

The Offline Adapter Standalone Management utility is not installed; you must extract it from its zip file. Once you extract the utility, the following directories are created with the Linux executables in the lx\ directory and the Windows executables in the win\ directory.

- boot\
- firmware\
- lx\
- win\

In Windows for example, three directories should be visible in the kit's root directory after you extract the standalone utility. The top level "boot" directory and "firmware" directory are the default directories where elxflash looks for firmware and boot code images. Ensure that firmware and boot code are located in these directories.

```
# dir

07/05/2012  07:02 PM    <DIR>          .
07/05/2012  07:02 PM    <DIR>          ..
07/02/2012  03:14 PM    <DIR>          boot
07/02/2012  03:14 PM    <DIR>          firmware
07/02/2012  03:15 PM    <DIR>          win
```

The Offline Adapter Standalone Management utility has the same dependencies as Offline utility. See "Platform Pre-requisites" on page 12.

Note: There are no update or uninstall procedures for the Offline Adapter Standalone Management utility.

Offline Adapter Management Utility Installation for FreeBSD

The Offline Adapter Management Utility installation for FreeBSD uses an install script. The install script determines the correct architecture and distribution, and performs the following operations:

- Unloads the NIC driver, if it is loaded.
- Installs the packaged NIC driver.
- Installs ElxflashOffline utility and linlpcfg.
- Temporarily mounts /proc.

Note: For security reasons, /proc is not mounted by default; however, Elxflash and linlpcfg require that /proc be mounted in order to run. Verify /proc is mounted before running Elxflash or linlpcfg.

To install the Offline Adapter Management utility for FreeBSD:

1. Untar the installation tar ball.
2. Run the install script located on the root of the installation kit.

   For example:

   ```
   # tar xvf elxflashOffline-<platforms>-<version>-<rel>.tgz
   # cd elxflashOffline-<platforms>-<version>-<rel>
   # ./install.sh
   ```

Updating

To update the Offline Adapter Management utility for FreeBSD, uninstall the old version and then unzip the new version.

Uninstalling

To uninstall the Offline Adapter Management utility for FreeBSD:

Run the uninstall script located on the root of the installation kit.

For example:

```
# cd elxflashOffline-<platforms>-<version>-<rel>
# ./uninstall.sh
```

Firmware and Boot Code Prefixes

Table 2-1 provides the Emulex adapter model names, Elxflash model names, port types, corresponding firmware, and corresponding boot code file name prefixes.

- The F/W File Prefix column lists the first letter that begins the name of the appropriate firmware file name.
- The Boot File Prefix column lists the two letters that begin the name of the boot code file name images:
  - xU=Universal boot
  - xB=x86Boot
  - xO=OpenBoot
  - xP=Pair Boot (x86+EFI)
  - xE=EFIBoot.

Table 2-1 Elxflash Model Name, Firmware and Boot Code Prefixes

Emulex Adapter Model	Elxflash Model Name	Port Type	F/W File Prefix	Boot File Prefix
LP11000	LP11000	FC	BD	BU, BB, BO, BE
LP11002	LP11002	FC	BF	BU, BB, BO, BE
LP1105	LP1105	FC	BF	BU, BB, BO, BE

Table 2-1 Elxflash Model Name, Firmware and Boot Code Prefixes (Continued)

Emulex Adapter Model	Elxflash Model Name	Port Type	F/W File Prefix	Boot File Prefix
LP1150	LP1150	FC	JF	JB, JP, JE
LPe11000	LPe11000	FC	ZD	ZU, ZB, ZO, ZE
LPe11002	LPe11002	FC	ZF	ZU, ZB, ZO, ZE
LPem11002	LPem11002	FC	ZF	ZU, ZB, ZO, ZE
LPe11004	LPe11004	FC	ZF	ZU, ZB, ZO, ZE
LPem11004	LPem11004	FC	ZF	ZU, ZB, ZO, ZE
LPe1150	LPe1150	FC	WF	WB, WP, WE
LPe12000	LPe12000	FC	UD	UU, UB, UO, UE
LPSe12000	LPSe12000	FC	FD	FU
LPe12002	LPe12002	FC	UD	UU, UB, UO, UE
LPSe12002	LPSe12002	FC	FD	FU
LPem12002	LPem12002	FC	UD	UU, UB, UO, UE
LPe12004	LPe12004	FC	UD	UU, UB, UO, UE
LPe1250	LPe1250	FC	OF	OB, OP, OE
LPe1252	LPe1252	FC	OF	OB, OP, OE
LPe16000	LPe16000	FC	A	N/A
LPe16000	LPe16000-FCoE	FCoE	A	N/A
LPe16000	LPe16000-FCoE	NIC	A	N/A
LPe16002	LPe16002	FC	A	N/A
OCe10102	OCe10100-FCoE	FCoE	oc10	N/A
OCe10102	OCe10100-iSCSI	iSCSI	oc10	N/A
OCe10102	OCe10100-NIC	NIC	oc10	N/A
OCe11101	OCe11100-FCoE	FCoE	oc11	N/A
OCe11101	OCe11100-iSCSI	iSCSI	oc11	N/A
OCe11101	OCe11100-NIC	NIC	oc11	N/A
OCe11102	OCe11100-FCoE	FCoE	oc11	N/A
OCe11102	OCe11100-iSCSI	iSCSI	oc11	N/A
OCe11102	OCe11100-NIC	NIC	oc11	N/A

Sample Configuration File

```
// Example FWMATRIX.TXT
//
// This is a tab delimited file forming a table of firmware and boot code
// image file names associated with each HBA type.
//
// Note: All firmware image files are expected to be in the
//       sub-directory named "firmware".
//
// Note: All boot code image files are expected to be in the
//       sub-directory named "boot".
//
// These entries and the actual image filenames are case sensitive.
//
// Note: The HBA types are always Emulex model names.
//
// hbatype          firmware          bootcode
LP11000           BD282A4.ALL       BU512A11.PRG

LP11002           BF282A4.ALL       BU512A11.PRG

LP1105            BF282A4.ALL       BU512A11.PRG

LP1150            JF282A4.ALL       JP512A11.PRG

LPe11000          ZD282A4.ALL       ZU512A11.PRG

LPe11002          ZF282A4.ALL       ZU512A11.PRG

LPe11004          ZF282A4.ALL       ZU512A11.PRG

LPem11002         ZF282A4.ALL       ZU512A11.PRG

LPem11104         ZF282A4.ALL       ZU512A11.PRG

LPe1105           ZF282A4.ALL       ZU512A11.PRG

LPe1150           WF282A4.ALL       WP512A11.PRG

LPSe12000         FD110A6.ALL       FU512A3.PRG

LPSe12002         FD110A6.ALL       FU512A3.PRG

LPe12000          UD201A10.ALL      UU512A11.PRG

LPe12002          UD201A10.ALL      UU512A11.PRG

LPe12004          UD201A10.ALL      UU512A11.PRG

LPe12202          UD201A10.ALL      UU512A11.PRG

LPe12204          UD201A10.ALL      UU512A11.PRG

LPem12002         UD201A10.ALL      UU512A11.PRG

LPe1205           UF201A10.ALL      UU512A11.PRG

LPe1205A          UH200A6.ALL       UU610A2.PRG

LPe1250           OF201A10.ALL      OP512A11.PRG

LPe1252           OF201A10.ALL      OP512A11.PRG

LPe16000          A11332.GRP

LPe16002          A11332.GRP

LPe16000-FCoE     A11332.GRP
```

```
OCe10100-FCoE          oc10-4.6.51.1.ufi
OCe10100-iSCSI         oc10-4.6.51.1.ufi
OCe10100-NIC           oc10-4.6.51.1.ufi
OCe11100-FCoE          oc11-4.6.51.1.ufi
OCe11100-iSCSI         oc11-4.6.51.1.ufi
OCe11100-NIC           oc11-4.6.51.1.ufi
```

Firmware images are available on the Emulex support site at:
http://www.emulex.com.

Note: OneConnect models (FCoE, iSCSI, and NIC) may share the same Emulex model name, but may run different protocols. For example, an Emulex model OCe10102 can be an FCoE, iSCSI, or NIC UCNA.

When the fwmatrix.txt file is used, the Elxflash model name must include the highest protocol being used on that model. An adapter's Elxflash model name can be seen by running the /Query command.

Note: On a FCoE/NIC adapter, the highest protocol is FCoE. On an iSCSI/NIC adapter, the highest protocol is iSCSI.

For example:

```
# ./elxflash /q
HBA=OCe11100-iSCSI, Port Type=iSCSI, MAC=00:00:C9:AD:AD:21, PCI ID=712, VID=19A2,
SSID=E702, SVID=10DF, Firmware=4.0.493.0, Boot Code=2.0.21.768
HBA=OCe11100-iSCSI, Port Type=iSCSI, MAC=00:00:C9:AD:AD:25, PCI ID=712, VID=19A2,
SSID=E702, SVID=10DF, Firmware=4.0.493.0, Boot Code=2.0.21.768
HBA=OCe11100-iSCSI, Port Type=NIC, MAC=00:00:C9:AD:AD:20, PCI ID=710, VID=19A2,
SSID=E702, SVID=10DF, Firmware=4.0.493.0, Boot Code=2.0.21.768
HBA=OCe11100-iSCSI, Port Type=NIC, MAC=00:00:C9:AD:AD:24, PCI ID=710, VID=19A2,
SSID=E702, SVID=10DF, Firmware=4.0.493.0, Boot Code=2.0.21.768
elxflash.exe: All required queries succeeded - Return Code=0
```

Note: The OCe11100 UCNA in the example above is an iSCSI adapter which has the Elxflash model name of OCe11100-iSCSI.

3. Adapter Management Utility Command Line Interface

There are two supported modes for each Adapter Management Utility (Elxflash) switch. The first mode relies on the fwmatrix.txt file. It is your responsibility to update the fwmatrix.txt file, firmware and boot code directories with the appropriate firmware and boot code images.

The second mode is auto-discovery. When the /auto switch is used with /ff, /fb, /downgrade, /rewrite, or /update, the Adapter Management Utility auto discovers adapters and, using the firmware and boot subdirectories, performs the specified operation on each adapter.

Auto-Discovery (/auto)

Usage: /auto

The auto-discovery switch instructs the Adapter Management Utility to ignore the fwmatrix.txt file, automatically discover local adapters, and perform specified operations (/f, /ff, /fb, /downgrade, /rewrite, or /update) using the firmware and boot directories.

The /auto switch must be used with an additional operational switch (/f, /ff, /fb, /downgrade, /rewrite, or /update).

Example usage:

./elxflash /auto /update – Updates the firmware and boot code using the firmware and boot directories.

- The fwmatrix.txt file is ignored. You must place the desired versions of firmware in the firmware directory.
- Using the firmware subdirectory, the Adapter Management Utility automatically discovers the best matching firmware for each installed and supported adapter.
- If multiple versions of firmware or boot code are found for an adapter, the Adapter Management Utility uses the highest version when performing the firmware download.

Downgrade (/downgrade or /g)

Usage: /downgrade or /g

The downgrade switch downgrades the firmware or boot code of each adapter if the currently installed versions are higher than the downgrade versions. This switch cannot be used with the /update or /rewrite commands.

Example usage:

./elxflash /downgrade /auto – Downgrades the firmware or boot code using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired downgrade versions of firmware or boot code in their respective directories.
- If the downgrade versions are lower than the currently installed versions on the adapter, then the downgrade versions are downloaded to the adapter.
- If multiple downgrade versions of firmware or boot code are found for an adapter, the next-previous downgrade versions are downloaded to the adapter.
- When performing the boot code downgrade operation, the Adapter Management Utility first tries to match by adapter family and boot type. If a match is not found, the Adapter Management Utility then tries to match by boot type. If the utility is matching by boot type and multiple versions of boot code are detected, downgrade always chooses in the following order:
  1. Universal (U)
  2. Pair (P)
  3. Open (O)
  4. EFI (E)
  5. x86 (B)

./elxflash /downgrade – Downgrades the firmware or boot code using the fwmatrix.txt file.

- For each installed and supported adapter, the current firmware or boot code versions are compared with the versions specified in fwmatrix.txt.
- If the downgrade versions in fwmatrix.txt are lower than the currently installed versions, the downgrade versions of firmware or boot code are downloaded to that adapter.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=<description>
```

FCoE Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

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iSCSI and NIC-only Adapter Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Notes:

- FCoE, iSCSI, and NIC-only adapters require a system reboot to activate new firmware.
- If the preview switch is also used, the Status=<description> field displays "Preview."

Force Firmware and Boot Code (/f or /ff /fb)

Usage: /f -or- /ff /fb

The Force Firmware and Boot Code switch forces a firmware and boot code download to an adapter regardless of the current version on the adapter. When this switch is used, a Force Firmware and Boot Code operation is performed regardless of any additional switches given on the command line.

Example usage:

./elxflash /f /auto – Forces a firmware and boot code download using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired versions of firmware and boot code in their respective directories.
- If multiple versions of firmware or boot code are found for an adapter, the Adapter Management Utility uses the highest versions when performing the firmware and boot code downloads.

./elxflash /f – Forces a firmware and boot code download using the fwmatrix.txt file.

- For each installed and supported adapter, forces a download of firmware and boot code using the versions specified in the fwmatrix.txt file.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=<description>
```

FCoE Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

iSCSI and NIC-only Adapter Summary:

```
<date><time>
HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Notes:

- FCoE, iSCSI, and NIC-only adapters require a system reboot to activate new firmware.
- If the preview switch is also used, the Status=<description> field displays "Preview."

Force Boot Code (/fb)

Usage: /fb

The Force Boot Code switch forces a boot code download to an adapter regardless of what boot code the adapter currently has installed. When this switch is used, a Force Boot Code operation is performed regardless of any additional switches given on the command line.

Example usage:

./elxflash /fb /auto – Forces a boot code download using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired versions of boot code in the boot directory.
- If multiple versions of boot code are found for an adapter, the Adapter Management Utility uses the highest version when performing the boot code download.

./elxflash /fb – Forces a boot code download using the fwmatrix.txt file.

- For each installed and supported adapter, forces a download of boot code using the boot code version specified in the fwmatrix.txt file.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Boot Code, Image=<image>, New=<version>, Old=<version>,
Status=<description>
Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Note: If the preview switch is also used, the Status=<description> field displays "Preview."

Force Firmware (/ff)

Usage: `/ff`

The Force Firmware switch forces a firmware download to an adapter regardless of what firmware the adapter currently has installed. When this switch is used, a Force Firmware operation is performed regardless of any additional switches given on the command line.

Example usage:

`./elxflash /ff /auto` – Forces a firmware download using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired versions of firmware in the firmware directory.
- If multiple versions of firmware are found for an adapter, the Adapter Management Utility uses the highest version when performing the firmware download.

`./elxflash /ff` – Forces a firmware download using the fwmatrix.txt file.

- For each installed and supported adapter, forces a download of firmware using the firmware version specified in the fwmatrix.txt file.

LightPulse and FCoE Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

iSCSI and NIC-only Adapter Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Notes:

- FCoE, iSCSI, and NIC-only adapters require a system reboot to activate new firmware.
- If the preview switch is also used, the Status=<description> field displays "Preview."

Firmware Matrix Directory Change (/fmd)

Usage: `/fmd=<directory>`

The firmware matrix directory change switch changes the location of the base directory where fwmatrix.txt is located.

Firmware Flash Override (/fo)

Usage: `/fo`

The flash override switch is used to execute a firmware download using the flash executable on supported UCNAs.

Note: The Flash Override command applies to Linux ElxflashOffline only.

Example usage:

`./elxflash /f /auto /fo` – Forces a firmware and boot code download using auto-discovery and downloads the firmware to supported UCNAs using the flash executable.

- The fwmatrix.txt file is ignored. The desired versions of firmware and boot code must be placed in their respective directories.
- If multiple versions of firmware and boot code are found for an adapter, Elxflash uses the highest versions when performing the firmware and boot code downloads.
- The flash executable is used to download firmware to supported UCNAs.

Example usage:

`./elxflash /f /fo` – Forces a firmware and boot code download using the fwmatrix.txt file and downloads the firmware to supported UCNAs using the flash executable.

- For each installed and supported adapter, a forced download of firmware and boot code occurs using the versions specified in the fwmatrix.txt file.
- The flash executable is used to download firmware to supported UCNAs.

Help (/h or /?)

Usage: `/h` or `/?`

The help switch displays a help message detailing instructions on how to use the Adapter Management Utility.

Image Directory Change (/id)

Usage: `/id=<image_directory>`

The image directory switch is used to specify the location of the firmware and boot code directories.

Example usage:

`./elxflash /f /auto /id=/tmp` – Forces a firmware and boot code download using auto-discovery. Elxflash looks for the firmware and boot code directories in the /tmp directory.

- The fwmatrix.txt file is ignored. The desired versions of firmware and boot code must be placed in their respective directories.
- In this example firmware must be placed in the /tmp/firmware directory and boot code must be placed in the /tmp/boot directory.
- If multiple versions of firmware and/or boot code are found for an adapter, Elxflash uses the highest versions when performing the firmware and boot code downloads.

`./elxflash /f /i=/tmp` – Forces a firmware and boot code download using the fwmatrix.txt file. Elxflash look for the firmware and boot code directories in the /tmp directory.

- For each installed and supported adapter, a forced download of firmware and boot code occurs using the versions specified in the fwmatrix.txt file.
- In this example firmware must be placed in the /tmp/firmware directory and boot code must be placed in the /tmp/boot directory.

Note: This switch was "/i" in previous versions of the online/offline utility.

Image Version Display (/iv)

Usage: `/iv=<image file>`

The image version display switch displays the firmware image file's version number.

Example usage:

```
./elxflash /iv=A11100.grp
1.1.10.0
```

Log (/log)

Usage: `/log=<logfile.txt>`

The log switch appends the output of the Adapter Management Utility to a text file. Log can be used with any switch.

Preview (/p)

Usage: `/p`

The preview switch provides you with a download preview of all adapters that the Adapter Management Utility can update using either auto-discovery or the fwmatrix.txt file. The preview switch can be used with any of the operational switches such as: force firmware, force boot, downgrade, rewrite, and update. When the preview switch is used, the Adapter Management Utility displays a download summary, but does not actually perform the download.

Each adapter's download preview displays the adapter's old and new image version. The old image version represents the image version that is currently on the adapter. The new image version represents the image version that the Adapter Management Utility would use during a download.

Example usage:

`./elxflash /preview /auto /update` – Previews an upgrade of firmware or boot code using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired update versions of firmware or boot code in their respective directories.
- If the update versions are higher than the currently installed versions on the adapter, the Adapter Management Utility provides a download preview for each adapter that can be updated.
- If multiple update versions of firmware or boot code are found for an adapter, the Adapter Management Utility provides a download preview using the highest versions.

`./elxflash /preview` – Previews an upgrade of firmware or boot code using the fwmatrix.txt file.

- For each installed and supported adapter, the current firmware and boot code versions are compared with the versions specified in fwmatrix.txt.

- If the update versions in fwmatrix.txt are higher than the currently installed versions, the Adapter Management Utility provides a download preview of firmware or boot code for each adapter that can be updated.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=Preview
```

FCoE Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=Preview
```

iSCSI and NIC-only Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=Preview
```

Process FC HBAs Only (/fc)

Usage: `/fc`

The Process FC HBAs Only switch causes elxflash to only act on FC HBAs.

Example usage:

`./elxflash /q /fc` - Only FC HBAs are displayed for a query.

`./elxflash /auto /up /fc` - Applies auto update only to FC HBAs.

When doing a firmware or boot code update and the /fc switch is used, only FC HBAs are updated; UCNAs are not displayed.

Note: /fc is not available on ElxflashOffline_NIC_only.

Process UCNAs Only (/ucna)

Usage: `/ucna`

The Process UCNA Only switch causes elxflash to only act on UNCAs.

Example usage:

`./elxflash /q /ucna` - For a query only UCNAs are displayed.

`./elxflash /auto /up /ucna` - Apply auto update only to UCNAs.

When doing a firmware or boot code update and the /ucna switch is used, only UCNAs are updated; FC HBAs are not displayed.

Query (/q)

Usage: `/q`

The query switch displays an adapter's model, WWN or MAC address, PCI_ID, firmware version, and boot code version. Query can be used with any switch.

LightPulse Adapter Status Summary

```
HBA=<model>, Port Type=<port_type>, WWN =<wwn>, Firmware=<version>,
Boot Code=<version>, Boot Code enable=<status>
```

FCoE Adapter Status Summary

```
HBA=<model>, Port Type=<port_type>, WWN =<wwn>, Firmware=<version>, Boot Code=<version>
```

iSCSI and NIC-only Adapter Status Summary

```
HBA=<model>, Port Type=<port_type>, MAC =<mac_address>, Firmware=<version>, Boot
Code=<version>
```

Notes:

- On LightPulse adapters, the query switch displays boot code version information only if the adapter has boot code installed.
- When the query switch is used with an operational switch, the query also includes an additional field called "Supported Firmware" or "Supported Boot Code".

Ramdrive (/ramdrive) - (Windows Offline Adapter Management Utility only)

Usage: `/ramdrive=<drive letter>[:]`

The ramdrive switch specifies the drive for creating temporary and log files. The default is drive X.

Remote (/remote) - (Online Adapter Management Utility only)

Usage: `/remote`

The remote switch enables updates on remote in-band adapters.

Rewrite (/rewrite or /e)

Usage: `/rewrite` -or- `/e`

The rewrite switch updates the firmware or boot code of each adapter if the currently installed versions are less than or equal to the rewrite versions. This switch cannot be used with /update or /downgrade.

Example usage:

`./elxflash /rewrite /auto` – Rewrites the firmware boot code using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired rewrite versions of firmware or boot code in their respective directories.
- If the rewrite versions are higher than or equal to the versions installed on the adapter, then the rewrite versions are downloaded to the adapter.
- If multiple rewrite versions of firmware or boot code are found for an adapter, the highest versions are downloaded to the adapter.
- When performing the boot code rewrite operation, the Adapter Management Utility first tries to match by adapter family and boot type. If a match is not found, the Adapter Management Utility then tries to match by boot type. If the utility is matching by boot type, and multiple versions of boot code are detected, rewrite always chooses in the following order:
  1. Universal (U)
  2. Pair (P)
  3. Open (O)
  4. EFI (E)
  5. x86 (B)

`./elxflash /rewrite` – Rewrites the firmware or boot code using the fwmatrix.txt file.

- For each installed and supported adapter, the current firmware or boot code versions are compared with the versions in fwmatrix.txt.
- If the currently installed versions are less than or equal to the rewrite versions in fwmatrix.txt then the rewrite versions of firmware or boot code are downloaded to the adapter.

LightPulse Adapter Download Summary

```
<date><time>

HBA=<model>, Port Type=<port_type>, WWN=<wwn>,

Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=<description>
```

FCoE Adapter Download Summary

```
<date><time>

HBA=<model>, Port Type=<port_type>, WWN=<wwn>,

Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

iSCSI and NIC-only Adapter Download Summary

```
<date><time>

HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,

Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>

Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Notes:

- FCoE, iSCSI, and NIC-only adapters require a system reboot to activate new firmware.
- If the preview switch is also used, the Status =<description> field displays "Preview."

Silent (/s)

Usage: `/s`

The silent switch mutes all output to stdout.

Example usage:

`./elxflash /f /auto /s` – Forces a firmware and boot code download using auto-discovery and mutes all output to stdout.

- The fwmatrix.txt file is ignored. The desired versions of firmware and boot code must be placed in their respective directories.
- If multiple versions of firmware and/or boot code are found for an adapter, Elxflash uses the highest versions when performing the firmware and boot code downloads.
- No output is printed to stdout.

`./elxflash /f /s` – Forces a firmware and boot code download using the fwmatrix.txt file and mutes all output to stdout.

- For each installed and supported adapter, a download of firmware and boot code is forced using the versions specified in the fwmatrix.txt file.
- No output is printed to stdout.

Update (/update)

Usage: `/update`

The update switch updates the firmware or boot code of each adapter if the currently installed versions are less than the update versions. This switch cannot be used with /downgrade or /rewrite.

Example usage:

`./elxflash /update /auto` – Upgrades the firmware or boot code using auto-discovery.

- The fwmatrix.txt file is ignored. You must place the desired update versions of firmware or boot code in their respective directories.
- If the update versions are higher than the currently installed versions on the adapter then the update versions are downloaded to the adapter.
- If multiple update versions of firmware or boot code are found for an adapter, the highest versions are downloaded to the adapter.
- When performing the boot code update operation, the Adapter Management Utility uses the highest boot code version found. Since multiple compatible versions of boot code may exist, the highest version is selected in the following order:
  1. Universal (U)
  2. Pair (P)
  3. Open (O)
  4. EFI (E)
  5. x86 (B)

Note: The highest boot code version is downloaded regardless of the installed boot code. This allows upgrading from one type of boot code to another type.

`./elxflash /update` – Upgrades the firmware or boot code using the fwmatrix.txt file.

- For each installed and supported adapter, the current firmware and boot code versions are compared with the versions specified in fwmatrix.txt.
- If the update versions in fwmatrix.txt are higher than the currently installed versions then the update versions of firmware or boot code are downloaded to that adapter.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=<description>
```

FCoE Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

iSCSI and NIC-only Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,
Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

Note: FCoE, iSCSI, and NIC-only adapters require a system reboot to activate new firmware.

Verbose (/v)

Usage: /v

The verbose switch displays progress messages and can be used with any switch. When this switch is used, the following information is displayed:

- A download summary for all adapters that had successful or failed downloads.
- A summary of unsupported adapters, if applicable.
- A per adapter message for each adapter that the Adapter Management Utility did not update.

LightPulse Adapter Download Summary

```
<date><time>
HBA=<model>, Port Type=<port_type>, WWN=<wwn>,
Update=<Boot Code|Firmware>, Image=<image>, New=<version>,
Old=<version>, Status=<description>
```

FCoE Adapter Download Summary

```
<date><time>

HBA=<model>, Port Type=<port_type>, WWN=<wwn>,

Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>
```

iSCSI and NIC-only Adapter Download Summary

```
<date><time>

HBA=<model>, Port Type=<port_type>, MAC=<mac_address>,

Update=Firmware, Image=<image>, New=<version>, Old=<version>,
Status=<description>

Return Code=<n>
```

where <description> is Success or Error and <n> = 0 for completion with no errors and a non-zero error code for any error.

XML Output (/xml)

Usage: `/xml`

The xml switch displays utility output in xml format.

4. Offline Adapter Management Utility Command Line Interface

The Offline Adapter Management Utility allows you to configure Emulex adapters before you install or boot a server operating system.

The Offline Adapter Management Utility includes:

- winlpcfg
- linlpcfg

You can use the Offline Adapter Management Utility to do the following:

- View information on an Emulex adapter
- Reset the adapter
- Download firmware and boot code files
- Select a boot device
- Read and update world wide names (WWNs)
- Enable boot code
- Update configuration regions
- Set the adapter to use soft jumpers
- Run diagnostic tests
- Read and process script files

Command Syntax

In all cases, the commands are given with the prefix *os*. When you enter any command, you must replace the *os* with either:

- win – for the WinPE Offline Adapter Management Utility commands for use on WinPE machines.
- ./lin – for the Linux Offline Adapter Management Utility commands for use on Linux and FreeBSD machines.

The Offline Adapter Management Utility commands are not case-sensitive, nor are their arguments. You can enter them in upper, lower, or mixed case. However, for Linux operating systems, Emulex recommends using linlpcfg (all lowercase) for the Offline Adapter Management Utility commands (for example, ./linlpcfg listhba).

The Offline Adapter Management Utility commands require both:

- One space between the command name and the first argument.
- One space between additional arguments.

Note: Do not put a space before or after the equal sign within an argument.

WWN values are reported and specified with two 4-byte hexadecimal words – WWN word 0 (w0) and WWN word 1 (w1). Concatenate the w0 and w1 values to make the full WWN.

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4. Offline Adapter Management Utility Command Line Interface   38
Running the Offline Adapter Management Utility from the Command Prompt

Running the Offline Adapter Management Utility from the Command Prompt

Note: You must start the WinPE and Linux Offline Adapter Management Utility at the command prompt.

1. Boot the system with a supported operating system.
2. Start the Offline Adapter Management Utility with a valid command or a valid script file name.
   - To start an Offline Adapter Management Utility from the command line, move to the directory where the executable file resides and type
     ```
     oslpcfg <valid command> (replace os with ./lin or win as appropriate)
     ```
     - For example, starting the WinPE Offline Adapter Management Utility with a reset command:
       ```
       winlpcfg reset n=2
       ```
     - For example, starting the Linux Offline Adapter Management Utility with a reset command:
       ```
       ./linlpcfg reset n=2
       ```
   - To start an Offline Adapter Management Utility with a script file name, from the directory where the `oslpcfg.exe` file resides, type
     ```
     oslpcfg @<script file name>
     ```
     - For example, starting an Offline Adapter Management Utility with script1.txt in the c:\test directory:
       ```
       oslpcfg @C:\test\script1.txt
       ```

Note: To redirect screen output to a file, add **<filename>** at the end of each command. For example:

```
oslpcfg listboot n=1 >result.out
```

Note: For more information on script files, see "Creating Script Files" on page 62 and "Script File Commands" on page 62.

Running the Standalone Adapter Management Utility

The Standalone Adapter Management Utility allows you to update firmware on Emulex adapters without needing to install any tools. No drivers are included in the Standalone kit. No applications are installed because the utility runs from inside the kit.

The Standalone Adapter Management Utility has the same capability as the Offline Adapter Management Utility, except that you use the following scripts to run the utility:

- Windows – winlpcfg.bat and elxflash.bat
- Linux – linplcfg.sh and elxflash.sh

Windows

1. Extract kit contents.
2. Change directory (cd) to elxflashStandalone-windows-<version>.

   The following directories should be present:

   - boot\
   - firmware\
   - win\

3. For Elxflash, copy firmware images to firmware directory. Copy boot images to boot directory.

   Note: For Elxflash, each operating system architecture directory includes a fwmatrix.txt file. You must use the fwmatrix.txt directory that matches the current operating system architecture.

4. Change directory (cd) to the win directory.

   The following files and directories should be present:

   - win32\
   - x64\
   - elxflash.bat
   - winlpcfg.bat

   The elxflash.bat script is used to configure the environment, run elxflash, and revert any changes before exiting. This script installs the MILI service if it is not installed.

   The winlpcfg.bat script is used to configure the environment, run winlpcfg, and revert any changes before exiting. This script installs the MILI service if it is not installed.

Notes:

- The MILI service is temporarily installed. The service is removed once the script execution is completed.
- If OCM is installed, the OCM libraries are used by the elxflash and winlpcfg utilities.

- The winlpcfg.bat and elxflash.bat scripts call the native versions of elxflash.exe and winlpcfg.exe. For example, on Windows x64, the 64bit utilities are called.
- The adapter being managed by the Standalone Adapter Management utility must not be simultaneously managed by other Emulex utilities including OCM.

5. To update firmware and bootcode on an adapter in Windows, type

```
# elxflash.bat /auto /up
```

To display a list of HBAs in Windows, type

```
# winlpcfg.bat  listhba   from the Win directory
```

Each time elxflash or lpcfg are run a log file is created. On Windows these files are called:

```
C:\clu\log\elxflash.log
C:\clu\log\winlpcfg.log
```

Linux

Note: Running 32-bit applications on Linux x86_64 is not supported. The .bat file only runs native executables.

1. Extract kit contents.
2. Change directory (cd) to elxflashStandalone-linux-<version>.

   The following directories should be present:

   - boot\
   - firmware\
   - lx\

3. For Elxflash, copy firmware images to firmware directory. Copy boot images to boot directory.

   Note: For Elxflash, each operating system architecture directory includes a fwmatrix.txt file. You must use the fwmatrix.txt directory that matches the current operating system architecture.

4. Change directory (cd) to the lx directory.

   The following files and directories should be present:

   - i386\
   - 86_64\
   - ppc64\
   - ia64\
   - elxflash.sh
   - lxlpcfg.sh

The elxflash.sh script is used to configure the environment, run elxflash, and revert any changes before exiting. This script installs the MILI daemon if it is not installed.

The linlpcfg.sh script is used to configure the environment, run linlpcfg, and revert any changes before exiting. This script installs the MILI daemons if they are not installed.

Notes:

- The MILI service is temporarily installed. The service is removed once the script execution is completed.
- If OCM is installed, the OCM libraries are used by the elxflash and linlpcfg utilities.
- The linlpcfg.sh and elxflash.sh scripts call the native versions of elxflash and linlpcfg. For example, on Linux x86_64, the 64bit utilities are called.
- The adapter being managed by the Standalone Adapter Management utility must not be simultaneously managed by other Emulex utilities including OCM.

5. To update firmware and bootcode on an adapter:

a. For Windows, type

```
# elxflash.bat /auto /up
```

b. For Linux, type

```
# ./elxflash.sh /auto up
```

To display a list of HBAs

a. For Windows, type

```
# winlpcfg.bat  listhba  from the Win directory
```

b. For Linux, type

```
# ./linlpcfg.sh  listhba
```

Each time elxflash or lpcfg are run a log file is created. On Linux these files are called:

```
/var/log/clu/elxflash.log
/var/log/clu/linlpcfg.log
```

Supported Commands

Table 4-1 lists all Offline Adapter Management Utility commands that are supported or not supported on Emulex traditional LightPulse HBAs and OneConnect adapters on various platforms.

✓ indicates commands are supported on both winlpcfg and linlpcfg.

L indicates commands are supported only on linlpcfg.

FCoE only indicates commands are supported only by FCoE UCNAs.

Table 4-1 Supported Commands

COMMANDS	FC Adapters				FCoE, NIC, and iSCSI Adapters	
	X86	X64	IA64	PPC	X86	X64
Operating Systems	RH 5.6+	RH 5.6+	RH 5.6+	RH 5.6+	RH 5.6+	RH 5.6+
	RH 6.1+	RH 6.1+		RH 6.1+	RH 6.1+	RH 6.1+
	SLES 11.1+	SLES 11.1+	SLES 11.1+	SLES 11.1+	SLES 11.1+	SLES 11.1+
	WinPE 2.x	WinPE 2.x			WinPE 2.x	WinPE 2.x
					Ubuntu 11.x, Ubuntu 12.x (Elxflash Standalone on OneConnect adapters only)	Ubuntu 11.x, Ubuntu 12.x (Elxflash Standalone on OneConnect adapters only)
					Debian 6 (Elxflash Standalone on OneConnect adapters only)	Debian 6 (Elxflash Standalone on OneConnect adapters only)
Config See "Notes on Supported Commands" on page 45.	✓	✓	✓	L	FCoE only	FCoE only
DirectDownload See "Notes on Supported Commands" on page 45.	L	L	L	L	N/A	N/A
DisableBoot	✓	✓	✓	L	N/A	N/A
disableBootDevice	✓	✓	✓	L	FCoE	FCoE
DmaTest See "Notes on Supported Commands" on page 44 and page 45.	N/A	N/A	N/A	N/A	✓	✓
Download See "Notes on Supported Commands" on page 44.	✓	✓	✓	L	✓	✓
EnableBoot	✓	✓	✓	L	FCoE	FCoE
enableBootDevice	✓	✓	✓	L	FCoE	FCoE

Table 4-1 Supported Commands (Continued)

COMMANDS	FC Adapters				FCoE, NIC, and iSCSI Adapters	
	X86	X64	IA64	PPC	X86	X64
extLoopback Supported Commands" on page 44.	✓	✓	✓	L	✓	✓
Help	✓	✓	✓	L	✓	✓
intLoopback Supported Commands" on page 44.	✓	✓	✓	L	✓	✓
ListBoot	✓	✓	✓	L	N/A	N/A
ListHBA Supported Commands" on page 44.	✓	✓	✓	L	✓	✓
listRev	✓	✓	✓	L	FCoE only	FCoE only
listMAC	N/A	N/A	N/A	N/A	NIC	NIC
listWWN	✓	✓	✓	L	FCoE only	FCoE only
logFile	✓	✓	✓	L	✓	✓
pciLoopback	✓	✓	✓	L	FCoE only	FCoE only
postTest Supported Commands" on page 45.	✓	✓	✓	L	N/A	N/A
personalityInfo	N/A	N/A	N/A	N/A	✓	✓
changePersonality	N/A	N/A	N/A	N/A	✓	✓
readAltBoot	✓	✓	✓	L	FCoE only	FCoE only
readBootDevice	✓	✓	✓	L	FCoE only	FCoE only
readConfig	✓	✓	✓	L	FCoE only	FCoE only
reset	✓	✓	✓	L	FCoE only	FCoE only
restoreDefWWN	✓	✓	✓	L	FCoE only	FCoE only
restoreNVWWN	✓	✓	✓	L	FCoE only	FCoE only
restoreWWN	✓	✓	✓	L	FCoE only	FCoE only
saveWWN	✓	✓	✓	L	FCoE only	FCoE only
screenDisplay	✓	✓	✓	L	FCoE only	FCoE only
scriptVWWNN	✓	✓	✓	L	FCoE only	FCoE only

Table 4-1 Supported Commands (Continued)

COMMANDS	FC Adapters				FCoE, NIC, and iSCSI Adapters	
	X86	X64	IA64	PPC	X86	X64
scriptVWWPN	✓	✓	✓	L	FCoE only	FCoE only
scriptWWNN	✓	✓	✓	L	FCoE only	FCoE only
scriptWWPN	✓	✓	✓	L	FCoE only	FCoE only
setAltBoot	✓	✓	✓	L	FCoE only	FCoE only
setBootDevice	✓	✓	✓	L	FCoE only	FCoE only
Version	✓	✓	✓	L	✓	✓
VPD Supported Commands" on page 45.	✓	✓	✓	L	✓	✓
writeWWN	✓	✓	✓	L	FCoE only	FCoE only

Notes on Supported Commands

- DmaTest is supported on OneConnect adapters only.
  Syntax:

  ```
  DmaTest n=<adapter index> p=<pattern> c=<byte count> r=<repeat count>
  p: 3 to 8-HEX byte pattern
  c: 64 to 4096
  r: 1 to 4096
  ```

- An external loopback plug is required. Syntax for OneConnect adapters:

  ```
  extLoopback n=<adapter index> p=<pattern> c=<byte count> r=<repeat count>
  p: 3 to 8-HEX byte pattern
  c: 1500 to 8192
  r: 1 to 4096
  ```

- Syntax for OneConnect adapters:

  Note: An internal loopback plug is required.

  ```
  intLoopback n=<adapter index> p=<pattern> c=<byte count> r=<repeat count>
   t=<type>
  p: 3 to 8-HEX byte pattern
  c: 1500 to 8192
  r: 1 to 4096
  t: 2
  ```

- The listHBA command displays all HBAs installed in the systems, OneConnect adapters included with all basic properties: Serial number, Physical number, Universal CNA type, NIC-Only/iSCSI/FCoE type.

- The download command does not support a= <adapter name> with OneConnect adapters.

- VPD is supported for the following UCNA functions:
  - OCe10102, FCoE functions only
  - OCe11102, FCoE functions, NIC and iSCSI functions
  - VPD is supported for all FC devices.
- The Config, DirectDownload, DmaTest, and postTest commands are not supported by the LPe16000 or LPe16002 adapters.

Viewing the Syntax for Commands (help or ?)

To view the syntax for all available commands, type

```
oslpcfg help
```

or

```
oslpcfg ?
```

To view the syntax for a specific command, type

```
oslpcfg help <command>
```

or

```
oslpcfg ? <command>
```

For example, either:

```
oslpcfg help download
```

or

```
oslpcfg ? download
```

returns a response similar to the following:

```
download <n=adapter> <i=imagepath>
```

or

```
download <a=adaptertype> <i=imagepath>
```

Resetting an Adapter (reset)

This command resets a specific adapter or all adapters in the system.

Syntax:

To reset one adapter, type

```
oslpcfg reset n=<adapter number>
```

To reset all adapters in the system, type

```
oslpcfg reset n=all
```

Running the Power-On Self-Test (posttest)

This command runs the POST on the selected adapter.

To run the adapter POST test, type

```
oslpcfg posttest n=<all/adapter number>
```

The following example runs the POST test on adapter #1.

```
oslpcfg posttest n=1
```

Viewing Adapter Information

Viewing Emulex Conventional Names Instead of VPD (- /c)

Adding a - /c to any command, that uses the parameter a= to return adapter data, causes the command to return an Emulex conventional model for the adapter rather than the model name in the adapter. /c can be used for any command that displays the model name. For instance:

- config
- download
- directdownload

Note: LpCfg does not always display the model name of the adapter being tested.

Examples of Emulex conventional model names:

- LPe12000
- LPe11002
- LP10000DC

Example of model names in (usually OEM) VDP data:

- LPe1104-M4

Viewing the Offline Adapter Management Utility Version Information (version)

This command shows the Offline Adapter Management Utility version information.

To view this information, type

```
oslpcfg version
```

Viewing VPD

This command shows the VPD of the adapter specified by its number.

To display VPD, type

    *os*lpcfg vpd n=<adapter number>

The following examples show VPD output:

    WinLpCfg.exe vpd n=1

Sample legacy FC response:

```
Product Name            : LPe12002, 8GB/S, 2-PORT, FC, PCI EXPRESS HBA, DIAG, OPTICS
PN (Part Number)        :LPE12002-M8
SN (Serial Number)      :VM80175529
V0                      :VM80175529
V1                      :Emulex LPe12002-M8 8Gb 2-port PCIe Fibre Channel Adapter
V2                      :LPe12002-M8
V3                      :T2:78,T3:79,7A,7B,7D,7E,7F,T7:73,TB:73,TFF:78
V4                      :0
Command completed, NO Error
```

Sample LPe 16000 HBA response:

```
Product Name            :Emulex LightPulse LPe16002-M6-D 2-Port 16Gb Fibre Channel
                        Adapter, FC PF
PN (Part Number)        :LPe16002-M6-D
SN (Serial Number)      :99999999
MN (Manufacture ID)     :1028
VS                      :DSV1028VPDR.VER1.0
VP                      :NPY2
VM                      :PMT7
VV                      :NMVEMULEX CORPORATION
VT                      :DTINIC
V0                      :99999999
V1                      :Emulex LightPulse LPe16002-M6-D 2-Port 16Gb Fibre Channel
                        Adapter
V2                      :LPe16002-M6-D
Command completed, NO Error
```

Viewing Boot Device Information (readbootdevice)

This command shows the WWN, the LUN (in decimal format), and the topology in use for the currently selected boot device.

To show this information, type

```
oslpcfg readbootdevice n=<adapter number>
```

The following example reads WWN and LUN for adapter #1:

```
oslpcfg readbootdevice n=1
```

Note: The readbootdevice command does not read boot device settings for EFI (IA64) adapter boot. This command is supported only for x86 and x86_64 adapter boot configurations. You can modify or show EFI boot settings using hbacmd or the EFI shell.

Viewing BootBIOS Versions (listboot)

This command lists all the BootBIOS versions, with indices (base 1) and code names, that are loaded in the flash of the adapter, specified by its number. If the selected adapter does not have any BootBIOS loaded, it returns error code 39.

To list BootBIOS versions, type

```
oslpcfg listboot n=<adapter number>
```

The following example lists BootBIOS versions that are loaded on adapter #3:

```
oslpcfg listboot n=3
```

Viewing all Adapters in the System (listhba)

This command lists all installed adapters in the system. Information includes the adapter number (base 1), the IEEE address assigned by the manufacturer, the functional firmware, the adapter type, and possible mailbox errors.

To list all adapters in the system, type

```
oslpcfg listhba
```

Sample response:

```
HBA 1: FCoE 10000000 C95B3C99 Functional FW: 2.701.126.5 OCe10102-F
HBA 2: FCoE 10000000 C95B3C9B Functional FW: 2.701.126.5 OCe10102-F
HBA 3: 10000000 C95B38CA Functional FW: US1.10N1  LPe12002
HBA 4: 10000000 C95B38CB Functional FW: US1.10N1  LPe12002
HBA 5: 10000000 C951AC67 Functional FW: WS2.50A4  LPe1150-F4
HBA 6: iSCSI  MAC:00.00.c9.5b.3f.f5 devID:702 Port:1 Func:2 Univ:YES OCe10102-I
HBA 7: iSCSI  MAC:00.00.c9.5b.3f.f7 devID:702 Port:0 Func:3 Univ:YES OCe10102-I
HBA 8: NIC    MAC:00.00.c9.5b.3f.f4 devID:700 Port:1 Func:0 Univ:YES OCe10102-I
HBA 9: NIC    MAC:00.00.c9.5b.3f.f6 devID:700 Port:0 Func:1 Univ:YES OCe10102-I
HBA 10: NIC    MAC:00.00.c9.5b.3c.98 devID:700 Port:1 Func:0 Univ:YES OCe10102-F
HBA 11: NIC    MAC:00.00.c9.5b.3c.9a devID:700 Port:0 Func:1 Univ:YES OCe10102-F
Command completed, NO Error!
```

In this example:

- HBAs 1,2, 10, and 11 are FCoE OneConnect UCNAs
- HBAs 6-9 are iSCSI OneConnect UCNAs
- HBAs 3-5 are LightPulse HBAs

Note: listHBA with option -/c displays the LightPulse HBA conventional model names instead of the model names contained in the VPD.

Viewing the WWN of All Adapters in the System (listwwn)

This command lists all adapters installed in the system and shows the factory-assigned WWN, the non-volatile WWPN, and the WWNN used to identify an adapter in the SAN.

The factory-assigned WWN is an IEEE address that cannot be changed in the field. The non-volatile WWN can be modified in the field and persists after a restart of the operating system. The full factory-assigned WWN and non-volatile WWN are a concatenation of the two 8-character values (word 0 and word 1) that are shown for each. You can modify the non-volatile WWPN and WWNN using either the writewwn command or the scriptwwnn and scriptwwnn commands. For more information on the writewwn command, see "Writing WWN and Updating NVPARMS (writewwn)" on page 52.

If the system does not have any Emulex adapters installed, it returns error code 45.

To show the WWN information, type:

    oslpcfg listwwn

Sample response:

```
adapter 1: LPe11002
        Factory IEEE:  10000000    C92774AF
        Non-Volatile WWPN: 10A2A2A2 C92774AF,   WWNN: 20A2A2A2 C92774AF
adapter 2: LPe11002
        Factory IEEE:  10000000    C92774AE
        Volatile WWPN: 10FFFFFF C92774AE,      WWNN: 20FFFFFF 00000000
adapter 3: LPe11004-M4
        Factory IEEE:  10000000    C93CCE08
        Non-Volatile WWPN: 10A3A3A3 C93CCE08,   WWNN: 20A3A3A3 C93CCE08
adapter 4: LPe11004-M4
        Factory IEEE:  10000000    C93CCE09
        Volatile WWPN: 10000000 C93CCE09,      WWNN: 20000000 C93CCE09
```

Viewing the MAC Address (listmac)

This command shows the MAC address of a NIC UCNA port.

To view the MAC address of a NIC UCNA port, type

    oslpcfg listmac n=<adapter number>

Sample response:

    adapter 2: NIC Permanent MAC 00-00-c9-5b-3a-f4 MAC 00-00c9-5b3ac2

Viewing Firmware Program Revisions (listrev)

This command shows the firmware versions in the adapter's flash memory, specified by their numbers.

To show revisions, type

    oslpcfg listrev n=<adapter number>

The following example lists information for adapter #3:

    oslpcfg listrev n=3

Sample response:

```
Chipset Rev:
BIU:                                            1001206D
SM FW:                                          0BC12792
FW Rev:
Current FW:                                     SLI-3 Overlay
Kernel Rev:                                     FFC01213
Kernel            LP110021.20a3
Init FW:          LP11002Init Load 2.72a2
                  (BS2.72A2)
SLI-2:            LP11002Overlay 2.72a2
                  (B2F2.72A2)
SLI-3:            LP11002Overlay 2.72a2
                  (B3F2.72A2)
FC-PH Version Supported:
Highest FC-PH Version Supported = 4.3
Lowest FC-PH Version Supported = 4.3
Feature Availability = 0000 00ef
```

Viewing Selected Configuration Regions (readconfig)

This command shows the contents of the selected configuration region up to the initialized length or the specified byte count (if the initialized length is less than the specified byte count). Valid region numbers are 0 to 32. You must initialize the configuration region first by, for example, writing data to it.

To read a configuration, type

    oslpcfg readconfig n=<adapter number> r=<region number> l=<byte count>

The following example reads the configuration for adapter #1, region 0, byte count 20:

    oslpcfg readconfig n=1 r=0 l=20

Sample Response:

```
00000000:  10000000  c93ccce08
00000008:  20000000  c93ccce08
00000010:  00000000
```

Firmware and Boot Code Download Commands

Downloading a File (download)

This command downloads a firmware or boot code file to a specific adapter.

Note: This download command is not supported with CEE firmware (used with LP21002 and LP21000 CNAs).

The adapter name is the name that appears when you run the listHBA command. For more information on the listHBA command, see "Viewing all Adapters in the System (listhba)" on page 48.

To download a firmware image file to an adapter specified by its number, type

```
oslpcfg download n=<adapter number> i=<firmware image filename>
```

The following example downloads the zb200a1.prg (x86) BootBIOS file to adapter # 6; in this example, the x86 BootBIOS file is for an LPe11000 adapter:

```
oslpcfg download n=6 i=zb200a1.prg
```

Accessing the Flash Device Directly (directdownload)

This command directly accesses the flash device on the adapter without using the adapter firmware. This feature is useful in downloading a ROM file image if the firmware has been corrupted. The adapter name is the name that appears when you run the listHBA command. You can also use "default" for the adapter name if there is only one single-channel adapter or one dual-channel adapter in the system. For more information on the listHBA command, see "Viewing all Adapters in the System (listhba)" on page 48.

Notes:

- You cannot use directdownload in a script file.
- This command does not support a CEE firmware directdownload.

You can use this feature on the following Emulex adapters:

- LP21000 and LP21002
- LPe12000, LPe12002 and LPe1250
- LPe11000, LPe11002, LPe1150 and LPe11004
- LP11002, LP11000 and LP1150
- LP10000ExDC and LP1050Ex
- LP10000DC and LP10000
- LP1005DC-CM2
- LP1050 and LP1050DC

To access the flash device on the adapter directly, type (all on one line)

```
oslpcfg directdownload a=<adapter name/default> i=<firmware image
filename> s=<selection 0 or 1>
```

where s=1 saves the existing VPD.

The following example accesses the flash device on an LPe12000 HBA:

```
oslpcfg directdownload a=lpe12000 i=C:\image\ud100a8.rom s=1
```

The following example accesses the flash device if the offline utility cannot detect the adapter type and there is only one single-channel adapter or one dual-channel adapter in the system:

```
oslpcfg directdownload a=default i=C:\image\ud100a8.rom s=1
```

Caution: In versions prior to 5.1 or with option s=0 in version 5.1,the ROM images used with the directdownload command may not contain certain VPD information (for example, serial number, adapter model, or manufacturer). Direct download of a ROM image that has not been confirmed to contain the correct VPD image updates the board's firmware, but it also clears the VPD. The board will function. If you use calls for VPD in your applications, the information may be changed or missing.

Dual-channel adapters include:

- LP21002
- LPe12002
- LPe11002
- LP11002
- LP10000ExDC
- LP10000DC
- LP1050DC

Four-channel adapters include:

- LPe11004
- LPe12004

World Wide Name Commands

Writing WWN and Updating NVPARMS (writewwn)

This command allows you to enter word 0 and word 1 of the WWPN or WWNN from the keyboard or a barcode scanner to update a specified adapter's non-volatile parameters (NVPARMS) with a new WWPN or WWNN. The new WWPN and WWNN are used the next time the adapter is discovered. The adapter stores the original WWPN and WWNN in another region of the memory so it can be used to identify the adapter as it was manufactured. The WWN can also be read with a barcode scanner.

Write WWN prompts for the WWPN and WWNN cannot be used in a script file. The scriptwwnn and scriptwwpn commands use values entered with the command and can be used in a script file.

Caution: Use the writewwn command with caution. If you use the same WWPN or WWNN on more than one adapter in a fabric, unpredictable results may occur.

Note: Word 0 of WWNN and WWPN names must follow one of the following formats:
1 0 0 0 0 x x x
2 x x x x x x x
3 x x x x x x x
5 x x x x x x x

To modify the WWPN and WWNN, type

```
oslpcfg writewwn n=<adapter number>
```

The offline utility prompts you to enter new data:

- WWPN word 0
- WWPN word 1
- WWNN word 0
- WWNN word 1

The following example writes the WWPN and WWNN for adapter #1.

```
oslpcfg writewwn n=1
Enter or Scan value for WWPN word 0 now
```

Enter a value.

```
10000000
```

The system echoes what you entered, followed by the next prompt:

```
10000000
Enter or Scan value for WWPN word 1 now
```

Saving WWN data to a file (savewwn)

This command reads the original words 0 and 1 of the IEEE address, installed by manufacturing, from configuration regions 16 (or 32) of the adapter (specified by its number) and saves the configuration region information in the selected WWN file.

To save the WWN data to a file, type

```
oslpcfg savewwn n=<adapter number> c=<wwn filename>
```

The following example reads the configuration region information on adapter #4 and saves it to the contents of the ctwwn.sav file:

```
oslpcfg savewwn n=4 c=ctwwn.sav
```

Restoring WWN and Updating NVPARMS (restorewwn)

This command restores words 0 and 1 of the IEEE address from a specified file created with the savewwn command and uses them to update the NVPARMS port name with this IEEE address.

To restore the WWN, type

```
oslpcfg restorewwn n=<adapter number> c=<wwn filename>
```

The following example updates the NVPARMS on adapter #4 with the ctwwn.sav file.

```
oslpcfg restorewwn n=4 c=ctwwn.sav
```

Restoring NVPARMS (restorenvwwn)

This command restores the non-volatile WWPN and WWNN to the adapter, replacing any volatile WWPN and WWNN data, without powering off the adapter.

If the adapter does not have firmware that supports the volatile WWN, the following error message appears:

```
Write Volatile Parms Error. Reported Error 48
```

If this occurs, install firmware that supports the volatile WWN.

To restore the NVWWN, type

```
oslpcfg restorenvwwn n=<adapter number>
```

The following example restores the NVWWN on adapter #2.

```
oslpcfg restorenvwwn n=2
```

Restoring the IEEE address (restoredefwwn)

This command reads the IEEE address (assigned by the manufacturer) and writes it to the non-volatile WWPN and WWNN.

To restore the defwwn, type

```
oslpcfg restoredefwwn n=<adapter number>
```

The following example restores the defwwn on adapter #2.

```
oslpcfg restoredefwwn n=2
```

Boot Code Commands

You must enable BootBIOS before you can issue setBootDevice and setAltBoot commands. If necessary, use the enableboot command to enable BootBIOS. (See "Enabling or Disabling BootBIOS or Boot Code (enableboot/disableboot)" on page 55 for more information.)

To set the boot device with the offline utility, run the following commands in this order:

1. Use the listboot command to verify that the BootBIOS is present. (See "Viewing BootBIOS Versions (listboot)" on page 48 for more information.)

   Example:

   ```
   oslpcfg listboot n=1
   ```

   Sample return:

   ```
   bootBIOS 1 (enabled): ZB2.01A2
   bootBIOS 2 (disabled): ZB2.01A1
   ```

2. Use the setbootdevice command to set the boot device. (See "Selecting a Boot Device (setbootdevice)" on page 55 for more information.)

3. Configure the system BIOS so the adapter boot device is the highest in the boot order.

Enabling or Disabling BootBIOS or Boot Code (enableboot/disableboot)

This command enables or disables the BootBIOS (boot code) (selected by its index) for the specified adapter number. Index i is one of the indices (base 1) shown when you run the listboot command.

To enable BootBIOS, type

```
oslpcfg enableboot n=<adapter number> i=<index>
```

The following example enables BootBIOS on adapter #6:

```
oslpcfg enableboot n=6 i=1
```

To disable BootBIOS, type

```
oslpcfg disableboot n=<adapter number>
```

The following example disables BootBIOS on adapter #6:

```
oslpcfg disableboot n=6
```

Selecting a Boot Device (setbootdevice)

This command sets the boot device specified by its WWN, LUN, and desired topology.

- Set t to 0 for Arbitrated Loop.
- Set t to 1 for Point-to-Point.

The selected device boots when the system reboots.

The boot code must be enabled before issuing the setbootdevice command.

To set the boot device, type (all on one line)

```
oslpcfg setbootdevice n=<adapter number> w0=<wwpn word 0> w1=<wwpn
word 1> l=<Decimal ID of LUN> t=<topology>
```

Note: Enter the LUN number in decimal format.

The following example sets the boot device on adapter #1, LUN #46 with a desired topology of Arbitrated Loop:

```
oslpcfg setbootdevice n=1 w0=a1b2c3d4 w1=b946a4e8 l=46 t=0
```

Notes:

- If PLOGI fails after 50 msecs, the command is retried once.
- The setbootdevice command does not configure boot device settings for EFI (IA64) adapter boot. This command is supported only for the x86 and x86_64 adapter boot configuration. You can modify or display EFI boot settings using the EFI shell.

Enabling or Disabling Boot Devices (enablebootdevice/disablebootdevice)

After using the setBootDevice command, you can enable or disable the boot device by using the enablebootdevice or disablebootdevice command.

To enable the boot device, type

```
oslpcfg enablebootdevice n=<adapter number>
```

To disable the boot device, type

```
oslpcfg disablebootdevice n=<adapter number>
```

Read All Alternative Boot Devices - readaltboot

This command shows the WWN and LUN numbers in decimal format of all possible alternate boot devices. You can have up to seven alternate boot devices.

To read all alternate boot devices, type (all on one line)

```
oslpcfg readaltboot n=1
```

Sample response:

```
Alt Boot 1-
Boot Device WWN:      10000000     C920A4D6
Boot Device LUN:         1


Alt Boot 2-
Boot Device WWN:      10000000     C920A4D8
Boot Device LUN:         4


Alt Boot 3-
```

```
Boot Device WWN:        10000000       C920A4DA
Boot Device LUN:           3


Alt Boot 4-
Boot Device WWN:        10000000       C920A4DC
Boot Device LUN:           2


Alt Boot 5-
Boot Device WWN:        10000000       C920A4DE
Boot Device LUN:           1


Alt Boot 6-
Boot Device WWN:        10000000       C920A4F2
Boot Device LUN:          14
```

Note: The readaltboot command does not read boot device settings for EFI (IA64) adapter boot. This command is supported only for x86 and x86_64 adapter boot configuration. EFI boot settings can be modified or displayed using hbacmd or the EFI shell.

Selecting One or More Alternate Boot Devices (setaltboot)

This command sets alternate boot devices. You can set up to seven alternate boot devices, that is, index i can be from 1 to 7.

Note: The boot code must be enabled before you issue the setAltBoot command.

To set up one or more alternate boot devices, type (all on one line)

```
oslpcfg setaltboot n=<adapter number> i=<index> w0=<wwpn word 0>
w1=<wwpn word 1> l=<Decimal ID of LUN>
```

The following example set the alternate boot device on adapter #1, LUN #3:

```
oslpcfg setaltboot n=1 i=1 w0=12345678 w1=a842b6 l=3.
```

Note: The setaltboot command does not configure boot device settings for EFI (IA64) adapter boot. This command is supported only for x86 and x86_64 adapter boot configuration. EFI boot settings can be modified or displayed using hbacmd or the EFI shell.

Configuration Commands

Updating Configuration Regions (config)

There are two forms of configuration:

- Configure all adapters of a given adapter name at once
- Configure a single adapter by its number

Valid region numbers range from 0 to 32.

Update by Name

To update a specified configuration region on all adapters of the same selected name, type (all on one line)

```
oslpcfg config a=<adapter name> r=<region number> c=<configuration
filename>
```

Note: The adapter name is the name that appears when you run the listHBA command. For more information on the listHBA command, see "Viewing all Adapters in the System (listhba)" on page 48.

The following example updates region 6 of all LP11000 adapters with ctplus1.cfl:

```
oslpcfg config a=lp11000 r=6 c=ctplus1.cfl
```

The following example updates region 17 of all ABC24-FC56 adapters with d:\dfplus1.cfl:

```
oslpcfg config a=ABC24-FC56 r=17 c=d:\dfplus1.cfl
```

Note: The size of the .cfl file for configuration region update can be up to 2028 bytes.

Update by Number

To update a specified configuration region for one adapter, type (all on one line)

```
oslpcfg config n=<adapter number> r=<region number>
c=<configuration filename>
```

The following example updates region 17 of adapter number 4 with heplus1.cf1:

```
oslpcfg config n=4 r=17 c=heplus1.cfl
```

The following example updates region 6 of adapter number 2 with d:\dfplus1.cf1:

```
oslpcfg config n=2 r=6 c=d:\dfplus1.cfl
```

Viewing Personality Information (personalityInfo)

This command displays the current personality and the available personalities.

To view personality information, type

    oslpcfg personalityInfo n=<adapter index>

where adapter index is obtained from the listHBA command.

The following example lists the personalityInfo on adapter #3:

    oslpcfg personalityInfo n=3

Sample response:

    Current Personality: FCoE
    Configured Personality: FCoE
    Available Personalities:
    NIC
    iSCSI
    FCoE
    Command completed, NO Error

Changing Personality Information (changePersonality)

This command changes the personality of the adapter to the selected one.

To change personality, type

    oslpcfg changePersonality n=<adapter index> p=<personality string>

The following example changes the personality information on adapter #3:

    oslpcfg changePersonality n=3 p=iSCSI

Sample response:

    Please REBOOT the system now to activate the Personality change
    Command completed, NO Error

Running Tests

Note: Since the extloopback, intloopback, and pciloopback commands do not support testing on all installed adapters, the o=3 option applies to running linlpcfg with the script command. The o=3 option instructs lpcfg to ignore errors and continue script execution.

Running the External Loopback Test (extloopback)

This command runs the external loopback test. You must put a loopback plug in each adapter channel to be tested. You can test a specific adapter in the system. Specify the number of times you want the test to repeat, and direct the test response if an error is found.

The option on error choices are:

- o=1 stops the test on the first error
- o=2 ignores three errors and stops the test on the fourth error
- o=3 ignores errors and continues the test

Note: 'extloopback' does not support testing all installed adapters using n=all.

To run the external loopback test on LightPulse adapters, type (all on one line)

```
oslpcfg extloopback n=<adapter number> r=<repeat count> o=<option on error>
```

Note: You must put a loopback plug in each port tested for extloopback.

To run external loopback test on OneConnect adapters, type (all on one line)

```
oslpcfg extLoopback n=<adapter index> p=<pattern> c=<byte count> r=<repeat count>
```

where:

- p = 3 to 8-HEX byte pattern
- c = 1500 to 8192
- r = 1 to 4096

The following example runs the external loopback test 50 times on adapter #1 and stops the test if an error occurs:

```
oslpcfg extloopback n=1 r=50 o=1
```

Running the Internal Loopback Test (intloopback)

This command runs the internal loopback test. You can run the test on a specific adapter in the system. Specify the number of times you want the test to repeat, and direct the test response if an error occurs.

The option on error choices are:

- o=1 stops the test on the first error
- o=2 ignores three errors and stops the test on the fourth error
- o=3 ignores errors and continues the test

Notes:

- 'intloopback' does not support testing all installed adapters using n=all.
- Do not use the internal loopback test on Emulex blade adapters.

To run the internal loopback test, type (all on one line)

```
oslpcfg intloopback n=<adapter number> r=<repeat count> o=<option on error>
```

To run internal loopback test on OneConnect adapters, type (all on one line)

```
oslpcfg intLoopback n=<adapter index> p=<pattern> c=<byte count> r=<repeat count>
t=<type>
```

where:

- p = 3 to 8-HEX byte pattern
- c = 1500 to 8192
- r = 1 to 4096
- t = 2

The following example runs the internal loopback test 100 times on adapter #1 and stops the test if an error occurs:

```
oslpcfg intloopback n=1 r=100 o=1
```

Running the PCI Loopback Test (pciloopback)

This command runs the PCI loopback test. You can run the test on a specific adapter or on all adapters in the system. Specify the number of times you want the test to repeat, and direct the test response if an error occurs.

The option on error choices are:

- o=1 stops the test on the first error
- o=2 ignores three errors and stops the test on the fourth error
- o=3 ignores errors and continues the test

Note: 'pciloopback' does not support testing all installed adapters using n=all.

To run the PCI loopback test, type (all on one line)

```
oslpcfg pciloopback n=<all/adapter number> r=<repeat count> o=<option on error>
```

The following example runs the PCI loopback test 100 times on all adapters in the system and stops the testing if any errors occurs.

```
oslpcfg pciloopback n=all r=100 o=1
```

Using Script Files

Creating Script Files

You can group commands together and run them using a script file. You can also enter comment lines, which begin with a semicolon. Each line follows the same command syntax as those documented in this manual. The offline utility allows you to:

- Run commands entered in a script file. Use the @ command to run the script file.
- Run commands multiple times. Add the repeat command as the last line of the script file.
- Create a log of test results. Add the logfile command as the first line of the script file.

To run a script file type:

```
oslpcfg @<scriptname.txt>
```

The following example runs the script "script1.txt" that resides in the current directory and executes all the commands in that script file.

```
oslpcfg @script1.txt
```

Note: To interrupt and stop any script, press **<S>** on the keyboard.

Script File Commands

The following is a sample script file. Each command follows the syntax covered above. The comment lines begin with a semicolon (;):

```
version
screendisplay o=0
;download a=lpe11000 i=c:\temp\zd272a2.all
;reset n=1 s=0
;reset n=2 s=0
reset n=all s=0
listboot n=1
enableboot n=1 i=2
; pciloopback n=1 r=10 o=1
; pciloopback n=2 r=10 o=2
; pciloopback n=all r=50 o=3
intloopback n=1 r=10 o=1
intloopback n=2 r=10 o=1
extloopback n=1 r=40 o=3
extloopback n=2 r=40 o=3
;repeat r=10
```

Repeating a Series of Commands (repeat)

Enter this command at the end of a script file to repeat a series of commands from the beginning of the script file a specific number of times.

Note: To interrupt and stop the repeat command, press **<S>** on the keyboard.

To repeat the series of commands in the script file, add the following as the last line of the file:

```
repeat r=<repeat count>
```

The following example repeats the series of commands in the script file 10 times.

```
repeat r=10
```

Enabling or Disabling Test Messages on the Screen (screendisplay)

This command enables or disables test message display on the screen.

- o=0 – Prevents messages from appearing
- o=1 – Enables messages

Note: This command is supported only in script files.

To enable or disable test message displays, add the following line to the script:

```
screendisplay o=<display option>
```

In the following script file example, messages from the version and listhba commands are output to the log file and to the screen. After the screendisplay command is set to 0, all successive commands (download, listboot and enableboot) result messages are output only to the log file, not to the screen.

```
version
listhba
screendisplay o=0
download a=lpe11000 i=c:\temp\zd272a2.all
listboot n=2
enableboot n=2 i=1
```

Updating Non-volatile WWNN (scriptwwnn)

This command reads the WWNN words 0 and 1 from the command line to update the non-volatile WWNN. You can also include this command in a script file. When the adapter is discovered, the new WWNN value is used. The adapter retains the original WWNN in another region of the firmware.

Caution: Use the scriptwwnn command with caution. If you use the same WWNN on more than one adapter in a fabric, unpredictable results may occur.

To change WWNN words 0 and 1 from the command line, type (all in one line)

```
oslpcfg scriptwwnn n=<adapter number> w0=<wwnn word 0> w1=<wwnn word 1>
```

The following example updates non-volatile WWNN word 0 and word 1 for adapter #1:

```
oslpcfg scriptwwnn n=1 w0=10000345 w1=B620A1B2
```

Notes:

- Word 0 of WWNN and WWPN names must follow one of the following formats:
  1 0 0 0 0 x x x
  2 x x x x x x x
  3 x x x x x x x
  5 x x x x x x x

- If the scriptvwwnn command has been used previously, the adapter continues to use that WWNN until you change the WWNN with the restorenvwwn command.

Updating Non-volatile WWPN (scriptwwpn)

This command reads WWPN words 0 and 1 from the command line to update the non-volatile WWPN. You can also include this command in a script file. When it is discovered, the adapter uses the new WWNN value. It does not use the original IEEE address assigned by manufacturing (located in Configuration Region 16 or 32).

Caution: Use the scriptwwnn command with caution. If you use the same WWNN on more than one adapter in a fabric, unpredictable results may occur.

Note: If the scriptvwwnn command has been used previously, the adapter continues to use that WWPN until you change the WWPN with the restorenvwwn command.

To change WWPN words 0 and 1 from the command line, type (all in one line)

```
oslpcfg scriptwwpn n=<adapter number> w0=<wwpn word 0> w1=<wwpn word 1>
```

The following example updates the non-volatile WWPN word 0 word 1 for adapter #1:

```
oslpcfg scriptwwpn n=1 w0=20A2D6B8 w1=C920A1B2
```

Updating Volatile WWNN (scriptvwwnn)

This command reads the WWNN words 0 and 1 from the command line to update the volatile WWNN. When next discovered, the adapter uses this new WWPN. It does not use the original IEEE address assigned by manufacturing (located in Configuration Region 16 or 32) nor does it use the value entered by the writewwn or scriptwwnn commands.

If the adapter does not have firmware that supports the volatile WWN, the following error message appears:

```
Write Volatile Parms Error. Reported Error 48
```

If this occurs, install firmware that supports the volatile WWN.

Notes:

- Word 0 of WWNN and WWPN names must follow one of the following formats:
  1 0 0 0 0 x x x
  2 x x x x x x x
  3 x x x x x x x
  5 x x x x x x x

- Once you issue this command, the volatile WWNN is used by the adapter until the restorenvwwn command is issued or the system is restarted.

Caution: Use the scriptvwwnn command with caution. If you use the same VWWNN on more than one adapter in a fabric, unpredictable results may occur.

To change VWWNN words 0 and 1 from the command line, type (all in one line)

```
oslpcfg scriptvwwnn n=<adapter number> w0=<wwnn word 0> w1=<wwnn word 1>
```

The following example updates the volatile WWNN word 0 word 1 for adapter #1:

```
oslpcfg scriptvwwnn n=1 w0=20A2D6B8 w1=C920A1B2
```

Updating Volatile WWPN (scriptvwwpn)

This command reads the WWPN words 0 and 1 from the command line to update the volatile WWPN. When next discovered, the adapter uses this new WWPN. It does not use the original IEEE address assigned by manufacturing (located in Configuration Region 16 or 32) nor does it use the value entered by the writewwn or scriptwwpn commands.

If the adapter does not have firmware that supports the volatile WWN, the following error message appears:

```
Write Volatile Parms Error. Reported Error 48
```

If this occurs, install firmware that supports the volatile WWN.

Notes:

- Word 0 of WWNN and WWPN names must follow one of the following formats:
  1 0 0 0 0 x x x
  2 x x x x x x x
  3 x x x x x x x
  5 x x x x x x x

- Once you issue this command, the volatile WWNN is used by the adapter until the restorenvwwn command is issued or the system is restarted.

Caution: Use the scriptvwwnn command with caution. If you use the same VWWNN on more than one adapter in a fabric, unpredictable results may occur.

To change VWWPN words 0 and 1 from the command line, type (all in one line)

```
oslpcfg scriptvwwpn n=<adapter number> w0=<wwpn word 0> w1=<wwpn word 1>
```

The following example updates the volatile WWPN word 0 word 1 for adapter #1:

```
oslpcfg scriptvwwpn n=1 w0=20A2D6B8 w1=C920A1B2
```

Creating a Log (logfile)

This command creates a log file with a specified directory and file name. The default log file is lpcfglog.txt and is created in the system's current directory.

Note: This command is supported only in script files. Make it the first command in the script.

To create a log file use the following command as the first command in your script file, type

```
logfile l=<filename>
```

The following example creates a file called lplog.txt in the d:\ directory:

```
logfile l=d:\log\lplog.txt
```

Results of all commands are recorded in a log file. Unless otherwise specified by the logfile command, the default log file is Lpcfglog.txt in the current directory.

Sample log file:

```
>>>>>>>> Test Script starts on Tue Jul 31 14:52:36 2007>>>>>>>>
listhba
adapter 1:  C96C146D          Functional FW: WS2.70A5        LPe1150-F4
adapter 2:  C94B0718          Functional FW: ZS2.72A2        LPe11002-F4


extloopback n=all r=500 o=1


**Start tests on Adapter 1
Run EXT Loopback
 Pass 500 test(s)
*Complete tests on Adapter 1, NO error


**Start tests on Adapter 2
Run EXT Loopback
 Pass 500 test(s)
*Complete tests on Adapter 2, NO error


intloopback n=all r=500 o=1


**Start tests on Adapter 1
Run INT Loopback
 Pass 500 test(s)
*Complete tests on Adapter 1, NO error


**Start tests on Adapter 2
```

```
Run INT Loopback
 Pass 500 test(s)
*Complete tests on Adapter 2, NO error


pciloopback n=all r=500 o=1


**Start tests on Adapter 1
Run PCI Loopback
 Pass 500 test(s)
*Complete tests on Adapter 1, NO error


**Start tests on Adapter 2
Run PCI Loopback
 Pass 500 test(s)
*Complete tests on Adapter 2, NO error


extloopback n=all r=500 o=1


**Start tests on Adapter 1
EXTLB: Error - Link is not UP
Encounter Error, stop all tests
>>>>>>> Test Script stops on Tue Jul 31 14:53:45 2007
```

5. Offline and Online Adapter Management Utility Status Messages

The Offline Adapter Management Utility uses two methods to compute the return status of a command. The Offline Adapter Management Utility takes a very strict approach when an operation is performed using the fwmatrix.txt file. When an operation is performed using auto-discovery, the Offline Adapter Management Utility is less stringent.

Status Messages When Using the fwmatrix.txt File

If a supported adapter entry is found in the fwmatrix.txt file, an operation is conducted using the specified firmware and boot code versions. A supported adapter is defined as an adapter with an entry in the fwmatrix.txt file that is recognized by the Offline Adapter Management Utility. The entry in fwmatrix.txt must match the Offline Adapter Management Utility internal identification.

Table 5-1   fwmatrix.txt File Status Messages

Message Number	Message Title	Message Details
0	GOOD_ALL_UPGRADES_OK	Returned if and only if all the supported adapters had a successful download performed.
1	GOOD_NO_UPDATES_NEEDED	Returned if and only if the supported adapters did not need an update, downgrade, or rewrite operation.
2	ERROR_ALL_UPGRADES_FAILED	Returned if all of the supported adapters failed to complete the requested download.
3	ERROR_SOME_UPGRADES_FAILED	Returned if some of the supported adapters failed to complete the requested download.
4	ERROR_EMULEX_APPS_NOT_INSTALLED	Returned if the Offline Adapter Management Utility cannot find HBACMD. This return code applies only to ElxFlashOnline.
5	ERROR_NO_SUPPORTED_HBA_FOUND	Returned if the installed adapter has no entry in fwmatrix.txt or if the entry in the fwmatrix.txt does not match the Offline Adapter Management Utility internal identification of the adapter.

Status Messages When Using Elxflash

The Offline Adapter Management Utility takes a less stringent approach to reporting status messages when used with auto-discovery. An error message is returned only when the Offline Adapter Management Utility reports a failure during a download or if the firmware and boot directories cannot be located.

Table 5-2 Elxflash Status Messages

Message Number	Message Title	Message Details
0	GOOD_ALL_UPGRADES_OK	Returned if one, some or all of the discovered adapters had a successful download performed.
1	GOOD_NO_UPDATES_NEEDED	Returned if one, some or all of the discovered adapters did not need an update, downgrade, or rewrite operation. This should never be returned during a force firmware or force boot code download operation.
2	ERROR_ALL_UPGRADES_FAILED	Returned if all of the discovered adapters that had a download attempted failed during the operation.
3	ERROR_SOME_UPGRADES_FAILED	Returned if some of the discovered adapters that had a download attempted failed during the operation.
4	ERROR_EMULEX_APPS_COMMAND	Returned if Elxflash cannot execute an external executable such as: • oslpcfg (elxflashOffline) • hbacmd (elxflashOnline) • ethool (ElxflashOFfline NIC Only)
5	ERROR_NO_SUPORTED_HBA_FOUND	Returned if no supported adapters are found.
6	ERROR_DIRECTORY_NOT_FOUND	Returned if the firmware or boot directories are missing. Depending on the operation, auto-discovery expects the firmware or boot directories to exist as subdirectories in the root of the package directory.
7	GOOD_NO_UPGRADES_AVAILABLE	Returned if none of the discovered adapters had a matching image in the firmware or boot directories. In this case only, a matching image is an image that the adapter accepts regardless of the download operation being performed.
8	ERROR_NOT_ADMIN_USER	Returned when you attempt to run the executable and do not have administrator (Windows) or root (Linux) privileges.

Table 5-2 Elxflash Status Messages (Continued)

Message Number	Message Title	Message Details
9	ERROR_UNSUPPORTED_OS	Used by the ExIflash Standalone execution scripts. Returned when the scripts are run on an unsupported OS.
10	ERROR_UNSUPPORTED_ARCH	Used by the ExIflash Standalone execution scripts and returned when the scripts are run on an unsupported architecture.
11	GOOD_ALL_UPGRADES_OK_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, but all downloads to the other UCNA/HBAs succeeded.
12	GOOD_NO_UPDATES_NEEDED_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, and no updates were needed on the other UCNA/HBAs.
13	ERROR_ALL_UPGRADES_FAILED_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, and all downloads to the other UCNA/HBAs failed.
14	ERROR_SOME_UPGRADES_FAILED_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, and some downloads to the other UCNA/HBAs failed.
15	ERROR_NO_SUPPORTED_HBA_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, but no other HBA/UCNAs were discovered.
16	GOOD_NO_UPGRADES_AVAILABLE_SKIPPED_UNSUP_OC10	An unsupported OCe10100 was discovered, but no applicable firmware or boot code images where found for supported HBA/UCNAs.
19	ERROR_IMAGE_VERSION	An error occurred when decoding image version. The image file has an invalid extension or elxflash was unable to decode the image file's version. **Note:** This is returned only when using the /iv=<image_version> switch.

6. Offline LPCfg Error Codes

Table 6-1 LPCfg Error Codes

Error Code	Description
0	No error
1	Invalid adapter number
2	Mailbox command error
3	No valid boot (BIOS) code found
4	Open file error
5	Invalid configuration region
6	Invalid adapter name
7	Download error
8	Invalid boot (BIOS) code index
9	Link NOT up for external loopback test
10	Link NOT up for internal loopback test
11	Invalid jumper selection (in jumper command)
12	Invalid alternate configuration region (in jumper command)
13	PCI loopback test fails
14	Adapter reset error
15	Read configuration region error
16	No VPD information available
17	No command in command line
18	Open log file error
19	Read wakeup parameters error
20	Update wakeup parameters error
21	Incorrect test parameters
22	Stopped by user
23	Internal loopback test fails
24	External loopback test fails
25	Error exists after four retries
26	Invalid command
27	Incorrect syntax
28	Command supported only in script files
29	Read_rev error

Table 6-1 LPCfg Error Codes (Continued)

Error Code	Description
30	Dump configuration region error
31	Read file error
32	Short file error
33	Read NVPARMS error
34	Write NVPAMRMS error
35	Command does not support all adapters
36	Invalid LUN number
37	No boot (BIOS) code enabled
38	Update configuration region error
39	No boot (BIOS) found
40	Dump memory error
41	Update erasable read-only memory (EROM) error
42	Delete load entry error
43	Write WWN error
44	Not supported in script files
45	No Emulex adapter found
46	Invalid Alternate Boot Device Index
47	Cannot restart adapter
48	Write Volatile Parameters error
49	POST Test error
50	Incorrect symbols
51	Invalid length
52	Invalid topology
53	No Event Log
54	Read Event Log
55	Invalid input value
56	No Libdfc Library
57	Non-numeric input
58	No valid WWN
59	Region Cleanup
60	Region Initialize
62	Unable to allocate memory
63	DFC_InitDiagEnv error

Table 6-1 LPCfg Error Codes (Continued)

Error Code	Description
64	DFC_ReadPciCfg error
65	No driver installed
66	No valid driver
67	Not valid adapter type
68	Not valid image
69	Long File error
70	Incompatible image
71	Not supported
72	Milliservice not started
73	Script not supported
74	Mili not started
75	No NIC adapter
76	Personality information
77	Personality change
78	Administrator rights error
79	SLI4 management error
80	Reboot required
141	General error from Mili
200	General error

7. Troubleshooting

The Force Firmware (/ff), Force Boot (/fb), and the Force Firmware and Boot Code (/f) switches take precedence over the /downgrade, /update, and /rewrite switches. If /ff, /fb, or /f are used, the /downgrade, /update, and /rewrite switches are ignored.

The following examples illustrate this behavior:

1. ./elxflash /ff /update
   a. /update is ignored.
   b. Performs a Force Firmware operation on all installed and supported adapters.
2. ./elxflash /fb /update
   a. /update is ignored.
   b. Performs a Force Boot Code operation on all installed and supported adapters.
3. ./elxflash /ff /downgrade
   a. /downgrade is ignored
   b. Performs a Force Firmware operation on all installed and supported adapters.
4. /elxflash /fb / downgrade
   a. /downgrade is ignored.
   b. Performs a Force Boot Code operation on all installed and supported adapters.
5. ./elxflash /ff /rewrite
   a. /rewrite is ignored
   b. Performs a Force Firmware operation on all installed and supported adapters.
6. ./elxflash /fb / rewrite
   a. /rewrite is ignored.
   b. Performs a Force Boot Code operation on all installed and supported adapters.

Unsupported Driver

The Offline Adapter Management Utility outputs an error similar to the following if an unsupported driver is installed on the system:

```
elxflash: no supported Emulex HBA's found - Return Code=1
```

If an error similar to the above occurs, verify that the correct version of the driver is installed. The supported drivers and Linux distributions are listed in this document.

Updating Adapters without Boot Code

The Offline Adapter Management Utility reports an adapter's Boot Code version as "NONE" when the adapter does not have boot code installed. The Offline Adapter Management Utility does not update, downgrade, or rewrite the boot area if boot code is not present, but firmware will still be updated or downgraded without boot code. You can force a boot code download using auto-discovery or the fwmatrix.txt file.